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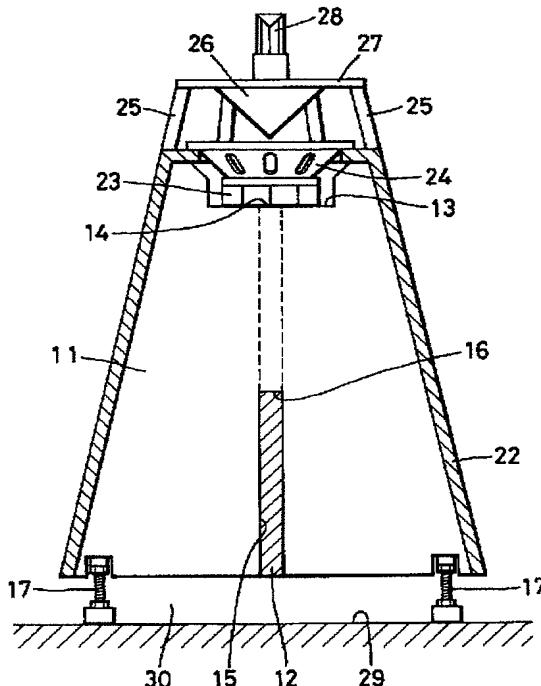
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(54)【考案の名称】 無指向性スピーカー装置

(57)【要約】

【目的】 この考案は無指向性で高音域から低音域まで再現でき、後面開放型からバスレス、密閉型へと自由に調整できるスピーカー装置を得ることができる。

【構成】 二枚のテーパー状の支持板11、12を平面が十字状となるように組合わせる。この組合わせた二枚の支持板11、12の上端に形成した凹部13、14に中音用スピーカー23、低音用スピーカー24を順次載せる。更に該スピーカー24の上に空間を存して、下向きのコーン26を設けてその上に高音用スピーカー28を載せる。該十字状の支持板11、12の外周に上下開放のテーパー状筒体22を被せ、この筒体22の下端には高さ調整自在の複数の脚17を設けて筒体22と床9との間の隙間を調整自在にする。



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【実用新案登録請求の範囲】

【請求項1】二枚のテーパー状の支持板を平面が十字状となるように組合わせ、この組合わせた二枚の支持板の上端に形成した凹部に中音用スピーカーを載せ、更に該中音用スピーカー上に低音用スピーカーを上向きにして載せ、更にその上に空間を存して、下向きのコーンを設けてその上に高音用スピーカーを載せ、該十字状の支持板の外周に上下開放のテーパー状筒体を被せ、前記支持板の下端には高さ調整自在の複数の脚を設けて筒体と床との間の隙間を調整自在にした無指向性スピーカー装置。

【図面の簡単な説明】

【図1】この考案の実施例の縦断側面図。

【図2】支持板の正面図。

【図3】支持板の組み立て状態の斜視図。

【図4】脚の一部縦断拡大正面図。

【図5】本考案の実施例の作用説明図。

* 【図6】従来例の縦断側面図。

【図7】従来例の縦断側面図。

【図8】従来例の縦断側面図。

【図9】従来例の縦断側面図。

【符号の説明】

1 1 支持板

1 2 支持板

1 3 凹部

1 4 凹部

10 1 5 切り込み

1 6 切り込み

1 7 脚

2 3 中音用スピーカー

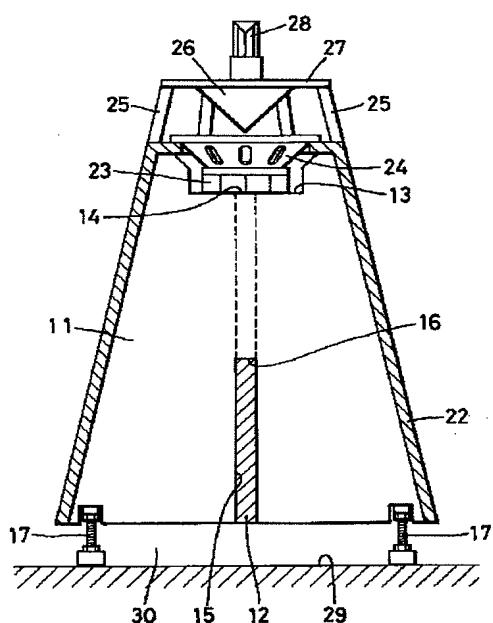
2 4 低音用スピーカー

2 6 コーン

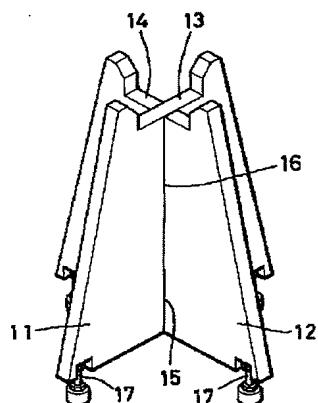
2 8 高音用スピーカー

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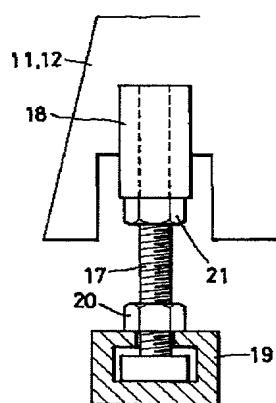
【図1】



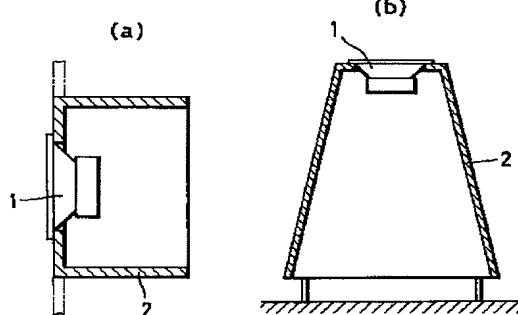
【図3】



【図4】



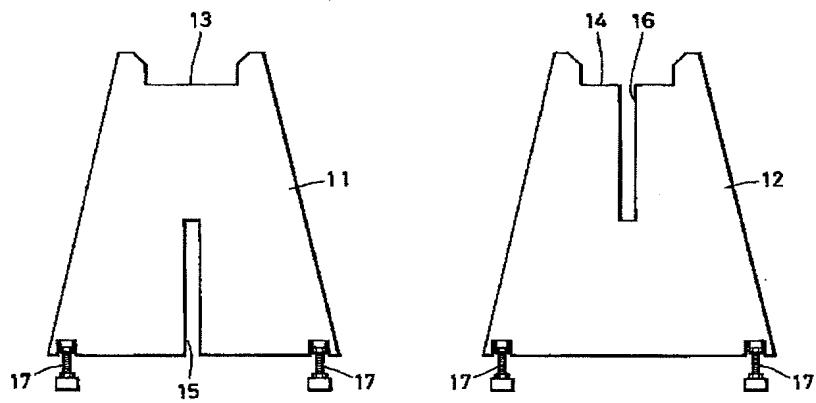
【図6】



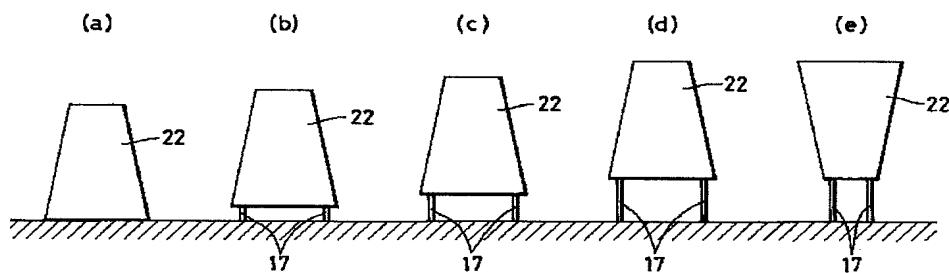
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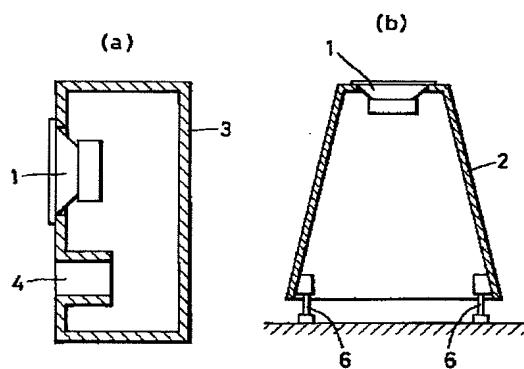
【図2】



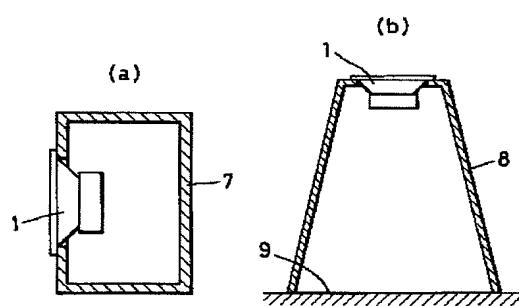
【図5】



【図7】



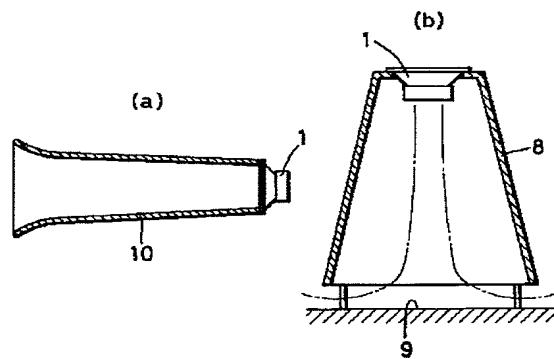
【図8】



(4)

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【図9】



【考案の詳細な説明】**【0001】****【産業上の利用分野】**

この考案は、喫茶店、生バンド店、広い場所などのあらゆる場所に適する無指向性スピーカーに関する。

【0002】**【従来の技術】**

従来のスピーカーは図6 (a) (b) のようにスピーカー1を支える筒体2の後端が開放された後面開放型や、図7 (a) のようなボックス3の前面上部にスピーカー1、それより下に開口4を設けたバスレフ型、同図 (b) のように筒体5の下端に複数の脚6を設けたバスレフ型がある。

【0003】

また、図8 (a) は密閉型で、後部を閉鎖したボックス7の前面の開口にスピーカー1を設けたものであり、同図 (b) はテーパー状筒体8の上端にスピーカー1を取り付け筒体8の下端は床9により密閉した密閉型である。

【0004】

更に、図9 (a) に示すものは、ホーン10の後端にスピーカー1を固定したホーン型スピーカー、同図 (b) に示すものはテーパー状筒体8の床9からの高さを開口面積と同じ高さにセットすると折り曲げホーンと等価になる。

【0005】

上記の従来技術のうち、図6 (a) の後面開放型は鎖線のように平面バスレフの変形で低音が軽いという特徴があり、密閉型は低音が重いという特徴がある。

【0006】

また、バスレフ型は中音の音響効果がある。

【0007】**【考案が解決しようとする課題】**

上記の従来技術はそれぞれの特徴があるが、一長一短があり、良好な効果を得ようとすると各種の形式のスピーカーを組み合わせて用いる必要があり、大きなスペースが必要となると共に経費も嵩むという問題がある。

【0008】

この考案の課題は、上記のような従来技術の問題点に鑑みて、一台で高音、中音、低音を兼ねると共にどの方向にも平均した音を伝達できる無指向性スピーカーを提供することを目的とする。

【0009】**【課題を解決するための手段】**

上記の課題を解決するため、この考案が講じた手段は、二枚のテーパー状の支持板を平面が十字状となるように組合わせ、この組合わせた二枚の支持板の上端に形成した凹部に中音用スピーカーを載せ、更に該中音用スピーカー上に低音用スピーカーを上向きにして載せ、更にその上に空間を存して下向きのコーンを設けてその上に高音用スピーカーを載せ、該十字状の支持板の外周に上下開放のテーパー状筒体を被せ、前記支持板の下端には高さ調整自在の複数の脚を設けて筒体と床の間の隙間を調整自在にしたことである。

【0010】**【作用】**

この考案は上記の構成であり、低音用スピーカーの音響は上方のコーンで反射されて、周囲に拡散し、同低音用スピーカーの音の一部と中音用スピーカーの音は、筒体内を下に向かい、筒体の下端と床の隙間から周囲に流れる。

【0011】

また、高音用スピーカーからの音はコーンの上方から周囲に流れる。そして、筒体の下端の脚の長さの調整により密閉型から開放型までのスピーカーの特徴を発揮させることができる。

【0012】**【実施例】**

以下、本考案の実施例を添付図面により説明する。

【0013】

図1ないし図5に示す実施例において、11, 12は合板からなるテーパー状の支持板で、上端にはそれぞれ凹部13, 14を形成してある。

【0014】

また、支持板11の下端中央からは支持板11の中ほどに達する切込み15を設け、支持板12の凹部14の底部の中央からは支持板12の中ほどに達する切込み16を設ける。

【0015】

上記のように形成した支持板11, 12を図3に示すように、切込み15, 16の係合を介して十字状に組合わせる。

【0016】

また、各支持板11, 12の下側両端には、それぞれ一対の脚17を取り付ける。

【0017】

該脚17は長さ調節自在となっている。例えば、図4のように支持板11, 12の下端の凹部に雌ねじを有する筒18を固定し、この筒18の雌ねじに脚17の雄ねじを螺合する。

【0018】

そして該脚17の下端に支持台19を回転自在に装着する。

【0019】

また、該脚17の下部にはスパナなどを係合するための多角形部20を形成して、ここにスパナなどを係合し、脚17を回転させると、脚17が筒18の雌ねじに対して回転しつつ上下して高さが調節される。

【0020】

その後、ロックナット21により脚17を固定する。また、該脚17を最も上昇させたときは支持台19が支持板11, 12の凹部内に引込んで支持板11, 12が床に接触する。但し、図示例以外の任意の構造のものも利用できる。

【0021】

図1の22はテーパー状の筒体であって、平面的には四角形と円形の場合がある。この筒体22は図3のように組み立てた支持板11, 12の外側に被せる。そして、凹部13, 14に周囲に向けて音を出す中音用スピーカー23を固定し、その上に低音用スピーカー24を上向きに音を出すように固定する。

【0022】

筒体22の上端には複数の支柱25を固定し、その上に下向きコーン26を固定する。そして該コーン26の上の受け板27に周囲に音を出す高音用スピーカー28を固定する。

【0023】

次に上記実施例の作用を説明すれば、中音用スピーカー23から周囲に出た音は、筒体22の内面に沿って下方に流れ、筒体22の下端と床29の隙間30から外部に出ていく。

【0024】

また、低音用スピーカー24から出た音はその上のコーン26に当たって反射し、周囲に出て行くが、一部の低音は下方に出て筒体22内を下方に向かい床29に反射して隙間30から外部に出ていく。更に高音スピーカー28からの高音は、その周囲から直接周りに出ていく。

【0025】

上記の作用に於いて、図5(a)乃至(e)に示す如く脚17を最大に上げて筒体22の下端を床29に付けてしまうと、隙間30が0となり密閉型スピーカーと同等の効果が得られる。また脚17を最大に延ばして隙間30を最大にすると、開放型スピーカーと同等の効果が得られる。

【0026】

即ち図5の(a)は無指向性スピーカーの下のボルト4本を完全にネジ込むと密閉型になり、(b)はボルトをスピーカーより1~3cm長くするとバスレフ型になり、(c)はスピーカーと床の高さを底辺の半分にすればホーン型となり、更に(d)は底辺以上にすると後面開放型となる。尚(e)は(d)で示したスピーカーの上下を逆にしたものである。

【0027】

【考案の効果】

この考案は上記のように、テーパー状の二枚の支持板を切込みの係合により、平面が十字状となるように組合わせ、この組合せられた二枚の支持板の上端に形成した十字状の凹部に複数のスピーカーを固定するものであるから簡単な構造で、スピーカーの強い反発力を受け止めることができる。(スピーカーの反発力は1

00Gにも達する) 従って、安定した状態で多くのスピーカーが支持できる。

【0028】

また低音と中音と高音の三種類のスピーカーを重ねて装着するものであるから、この考案の装置一台で複数のスピーカーを用いた場合と同等の効果が得られ、各スピーカーを別々に配置して利用する方法に比較して設置に要するスペースが節減できる。

【0029】

更に、筒体はテーパー状で平行面が全くないため、定存波が発生せず、癖のない素直な音が出る。

【0030】

また、十字状の支持板の外周を上端が小径になった上下開放の筒体を被せて、中音用スピーカーと低音用スピーカーからの音を筒体内を通して床に反射させて筒体の下端と床の間の隙間から周囲に放出させるものであり、筒体下端には高さ調整自在の複数の脚を設けて筒体と床の間の隙間を調整自在にしてあるから、この脚の調節により、筒体と床の隙間を0から最大にすることにより、密閉型から開放型までのあらゆる音響効果が得られる。

【0031】

また、低音用スピーカーから出た音は、その上のコーンにより反射させて周囲に放出するものであるから無指向性であり、広い場所の使用に適している。従つて特に広い場所でもこの考案のスピーカー装置を2台配置すれば広範囲に質のよい音響を聞かせることができる。

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CLAIMS

[The scope of a claim for utility model registration]

[Claim 1]Combine a tapered shape support plate of two sheets so that a flat surface may serve as cross shape, and a mid range speaker is put on a crevice formed in an upper bed of this combined support plate of two sheets, On this mid range speaker, turn a woofer upward, and carry it, and also space is consisted on it, An indirectional speaker system which provided a downward corn, carried a speaker for loud sounds on it, put a tapered shape barrel of up-and-down opening on a periphery of a support plate of this cross shape, provided two or more legs in which height adjustment is free in a lower end of said support plate, and enabled adjustment of a crevice between a barrel and an alcove.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed explanation of the device]

[0001]

[Industrial Application]

This device is related with an indirectional speaker suitable for all places, such as a teahouse, a raw band store, and a large place.

[0002]

[Description of the Prior Art]

The rear-face open sand mold with which the back end of the barrel 2 in which the conventional speaker supports the speaker 1 as shown in drawing 6 (a) and (b) was opened wide, As shown in the speaker 1, the bus reflex type which formed the opening 4 below it, and the figure (b), the bus reflex type which formed two or more legs 6 in the lower end of the barrel 5 is in the front top of the box 3 like drawing 7 (a).

[0003]

Drawing 8 (a) is an encapsulated type, the speaker 1 is formed in the opening of the front face of the box 7 which closed the rear, the figure (b) attaches the speaker 1 to the upper bed of the tapered shape barrel 8, and the lower end of the barrel 8 is the encapsulated type sealed by the floor 9.

[0004]

What shows what is shown in drawing 9 (a) in the horn type loudspeaker which fixed the speaker 1 to the back end of the phon 10, and the figure (b) will be bent if the height from the floor 9 of the tapered shape barrel 8 is set to the same height as an effective area product, and it becomes equivalent to a phon.

[0005]

The rear-face open sand mold of drawing 6 (a) has the feature that low-pitched sound is light, by modification of a flat-surface bus reflex like a broken chain line among the above-mentioned conventional technologies, and there is the feature that low-pitched sound of an encapsulated type is heavy.

[0006]

A bus reflex type has sound effects of an inside sound.

[0007]

[Problem(s) to be Solved by the Device]

Although the above-mentioned conventional technology has each feature, when there are merits and demerits and it is going to acquire a good effect, it is necessary to put together and use the speaker of various kinds of forms, and a big space is needed, and there is a problem that cost also increases.

[0008]

The technical problem of this device aims at providing the indirectional speaker which can transmit the sound which it served both as loud sound, an inside sound, and low-pitched sound by one set, and was averaged in every direction in view of the problem of the above conventional technologies.

[0009]

[Means for Solving the Problem]

In order to solve the above-mentioned technical problem, a means which this device provided, Combine a tapered shape support plate of two sheets so that a flat surface may serve as cross shape, and a mid range speaker is put on a crevice formed in an upper bed of this combined support plate of two sheets, On this mid range speaker, turn a woofer upward and it is carried, It is having consisted space, having provided a downward corn on it, having carried a speaker for loud sounds on it, having put a tapered shape barrel of up-and-down opening on a periphery of a support plate of this cross shape, having provided two or more legs in which height adjustment is free in a lower end of said support plate, and having enabled adjustment of a crevice between a barrel and an alcove.

[0010]

[Function]

This device is the above-mentioned composition, it is reflected with an upper corn, the sound of a woofer is diffused around, and a part of sound of the woofer and the sound of a mid range speaker flow through the inside of a barrel into the circumference from the lower end of a barrel, and the crevice between floors toward the bottom.

[0011]

The sound from the speaker for loud sounds flows into the circumference from the upper part of a corn. And the feature of the speaker from an encapsulated type to an open sand mold can be demonstrated by adjustment of the length of the leg of the lower end of a barrel.

[0012]

[Example]

Hereafter, an accompanying drawing explains the example of this design.

[0013]

In the example shown in drawing 1 thru/or drawing 5, 11 and 12 are the tapered shape support plates which consist of plywoods, and the crevices 13 and 14 are formed in the upper bed, respectively.

[0014]

From the center of a lower end of the support plate 11, the infeed 15 which reaches in the middle of the support plate 11 is formed, and the infeed 16 which reaches in the middle of the support plate 12 is formed from the center of the pars basilaris ossis occipitalis of the crevice 14 of the support plate 12.

[0015]

The support plates 11 and 12 formed as mentioned above are combined with cross shape via engagement of the infeeds 15 and 16, as shown in drawing 3.

[0016]

The leg 17 of a couple is attached to the bottom both ends of each support plates 11 and 12, respectively.

[0017]

Length adjustment is free for this leg 17. For example, the pipe 18 which has a female screw is fixed to the crevice of the lower end of the support plates 11 and 12 like drawing 4, and the male screw of the leg 17 is screwed in the female screw of this pipe 18.

[0018]

And the lower end of this leg 17 is equipped with the buck 19, enabling free rotation.

[0019]

If the polygon part 20 for engaging a spanner etc. with the lower part of this leg 17 is formed, a spanner etc. are engaged here and the leg 17 is rotated, it will fluctuate the leg 17 rotating to the female screw of the pipe 18, and height will be adjusted.

[0020]

Then, the leg 17 is fixed with the lock nut 21. When raising this leg 17 most, the buck 19 draws in the crevice of the support plates 11 and 12, and the support plates 11 and 12 contact a floor. However, the thing of arbitrary structures other than the example of a graphic display can also be used.

[0021]

22 of drawing 1 may be a tapered shape barrel, and may be superficially as circular as a quadrangle. This barrel 22 is put on the outside of the support plates 11 and 12 assembled like drawing 3.

And the mid range speaker 23 which takes out a sound to the crevices 13 and 14 towards the circumference is fixed, and on it, the woofer 24 is fixed so that a sound may be made upward.
[0022]

Two or more supports 25 are fixed to the upper bed of the barrel 22, and the downward corn 26 is fixed on it. And the speaker 28 for loud sounds which takes out a sound to the circumference is fixed to the backing plate 27 on this corn 26.

[0023]

Next, if an operation of the above-mentioned example is explained, the sound which appeared from the mid range speaker 23 in the circumference will flow caudad over the inner surface of the barrel 22, and will be left outside from the lower end of the barrel 22, and the crevice 30 between the floors 29.

[0024]

Although the sound which came out of the woofer 24 hits the corn 26 on it, and is reflected and it goes away around, a part of low-pitched sound comes out caudad, and it goes caudad, it reflects in the floor 29, and it leaves the inside of the barrel 22 outside from the crevice 30. The loud sound from the loud-sound speaker 28 is left in the circumference of direct from the circumference.

[0025]

In the above-mentioned operation, if the leg 17 is raised to the maximum and the lower end of the barrel 22 is attached to the floor 29 as shown in drawing 5 (a) thru/or (e), the crevice 30 will be set to 0 and an effect equivalent to an encapsulated type speaker will be acquired. If the leg 17 is extended to the maximum and the crevice 30 is made into the maximum, an effect equivalent to an open sand mold speaker will be acquired.

[0026]

Namely, (a) of drawing 5 becomes screw **** and an encapsulated type thoroughly about four bolts under an indirectional speaker, (b) will become a bus reflex type, if a bolt is made longer 1-3 cm than a speaker, (c) will become a horning die if the height of a speaker and a floor is made into the half of a base, and also if (d) is carried out beyond a base, it will become a rear-face open sand mold. (e) makes reverse the upper and lower sides of the speaker shown by (d).

[0027]

[Effect of the Device]

This device the tapered shape support plate of two sheets as mentioned above by engagement of infeed. It combines so that a flat surface may serve as cross shape, and since two or more speakers are fixed to the cross shape crevice formed in the upper bed of this combined support plate of two sheets, it can respond to the strong repulsive force of a speaker with an easy structure. Many speakers can be supported in (the repulsive force of a speaker amounting also to 100G), therefore the state where it was stabilized.

[0028]

Since it equips with three kinds of speakers, low-pitched sound, an inside sound, and loud sound, in piles, an effect equivalent to the case where two or more speakers are used with one device of this device is acquired, and the space which installation takes as compared with the method of arranging each speaker independently and using it can be reduced.

[0029]

In tapered shape, since there is no parallel surface, constant **** does not occur, but a gentle sound free from vice comes out of a barrel.

[0030]

The barrel of up-and-down opening in which the upper bed became a byway about the periphery of the cross shape support plate is put, It is a thing which is made to reflect the sound from a mid range speaker and a woofer in a floor through the inside of a barrel, and is made to emit to the circumference from the lower end of a barrel, and the crevice between alcoves, Since two or more legs in which height adjustment is free are provided in a barrel lower end and adjustment is

made free in the crevice between a barrel and an alcove, all the sound effects from an encapsulated type to an open sand mold are acquired by making the crevice between a barrel and a floor into the maximum from 0 by regulation of this leg.

[0031]

Since it is made to reflect with the corn on it and the sound which came out of the woofer is emitted to the circumference, it is indirectivity.

It is suitable for use of the large place.

Therefore, if two speaker systems of this device are arranged especially also at a large place, a broadly high quality sound can be told.

[Translation done.]

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The vertical section side view of the example of this device.

[Drawing 2]The front view of a support plate.

[Drawing 3]The perspective view of the assembly state of a support plate.

[Drawing 4]The partial vertical section expansion front view of a leg.

[Drawing 5]The operation explanatory view of the example of this design.

[Drawing 6]The vertical section side view of a conventional example.

[Drawing 7]The vertical section side view of a conventional example.

[Drawing 8]The vertical section side view of a conventional example.

[Drawing 9]The vertical section side view of a conventional example.

[Description of Notations]

11 Support plate

12 Support plate

13 Crevice

14 Crevice

15 Slitting

16 Slitting

17 Leg

23 Mid range speaker

24 Woofer

26 Corn

28 The speaker for loud sounds

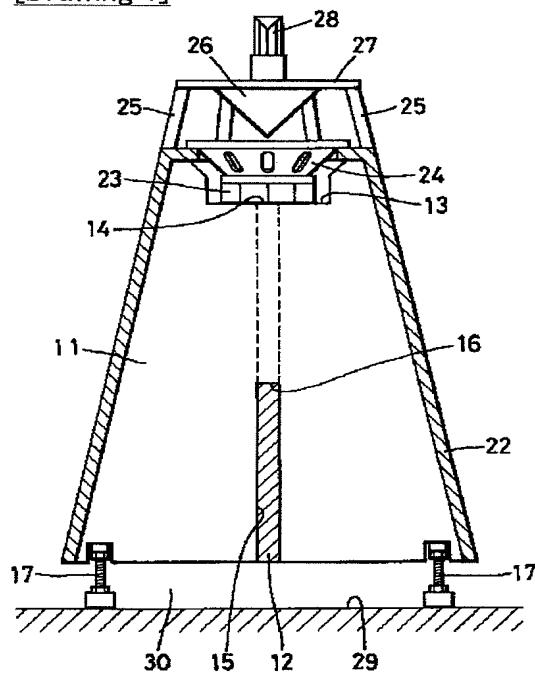
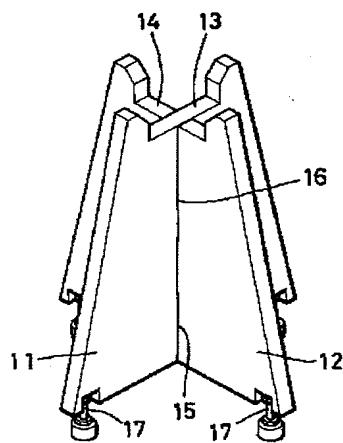
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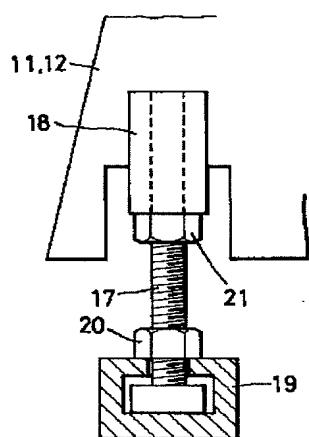
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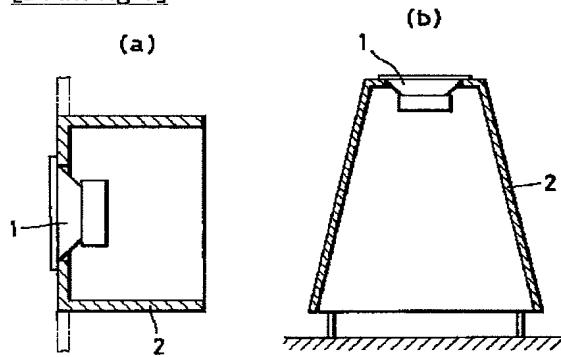
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DRAWINGS

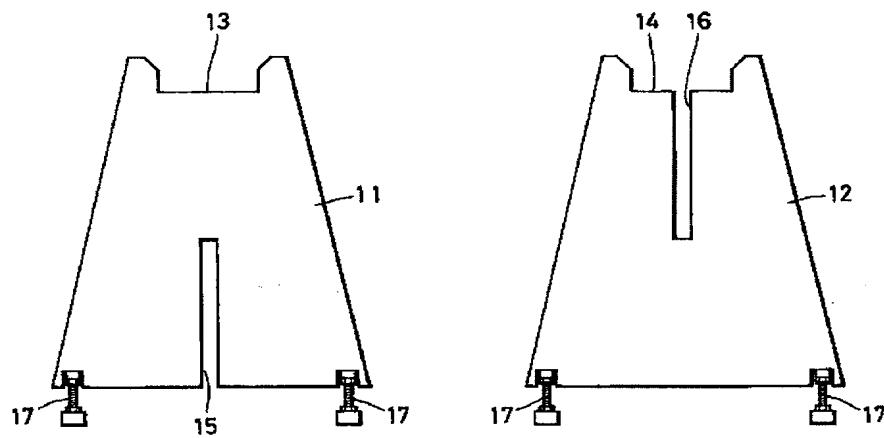
[Drawing 1]**[Drawing 3]****[Drawing 4]**



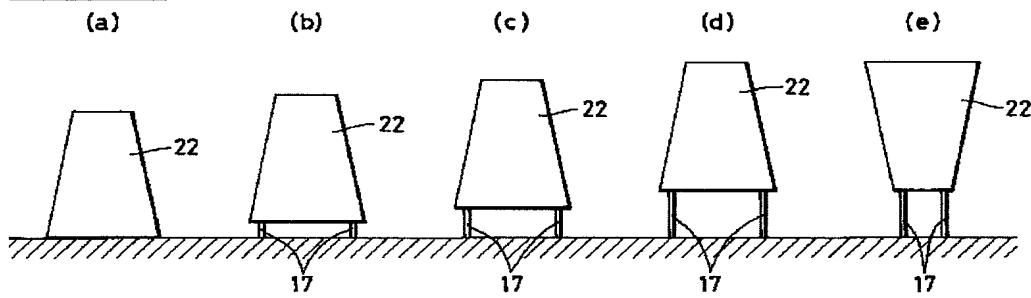
[Drawing 6]



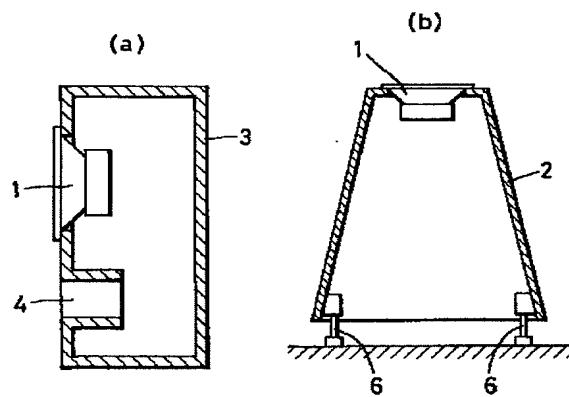
[Drawing 2]



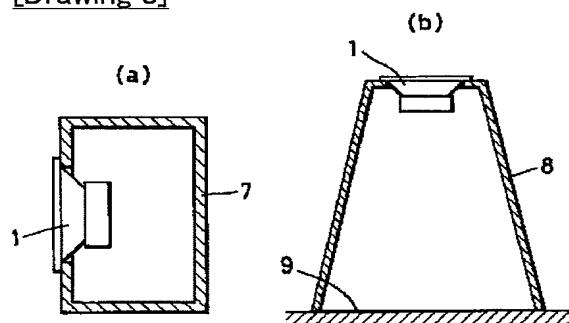
[Drawing 5]



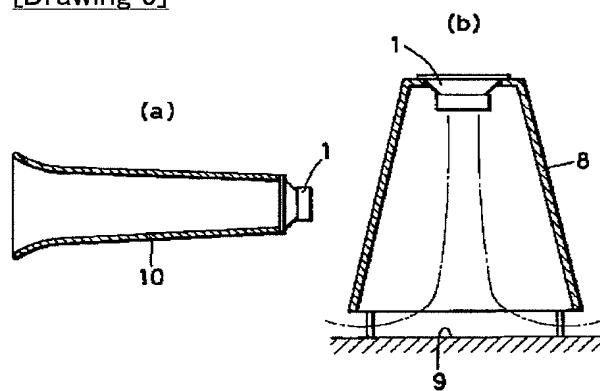
[Drawing 7]



[Drawing 8]



[Drawing 9]



[Translation done.]